CLAIMS:

1. A sound absorber consisting of two interconnected non-woven fabrics (1,2) bonded through thermoplastic and/or thermoset materials, wherein the non-woven fabric (1) facing towards the sound-emitting source has a layer thickness within a range of from 2 to 15 mm, a density within a range of from 50 to 500 kg/m^3, a weight per surface area within a range of from 0.1 to 5 kg/m^2, and a flow resistance within a range of from 50 to 1000 kNs/m^4, and the non-woven fabric (2) facing away from the soundemitting source has a layer thickness within a range of from 10 to 100 mm, a density within a range of from 20 to 100 kg/m^3, a weight per surface area within a range of from 0.5 to 1 kg/m^2, and a flow resistance within a range of from 10 to 40 kNs/m^4, with a total thickness of the sound absorber within a range of from 12 to 30 mm and a total weight per surface area of the sound absorber within a range of from 0.5 to 3 kg/m^2.

2. The sound absorber according to claim 1, characterized in that said non-woven fabric (1) and/or said non-woven fabric (2) consist of natural fibers and/or synthetic fibers.

3. The sound absorber according to claim 1, characterized in that said non-woven fabric (1) and/or said non-woven fabric (2) contain natural fibers selected from seed fibers, fruit wall fibers, bast fibers, and hard fibers including mixtures thereof.

4. The sound absorber according to claim 1, characterized in that said non-woven fabric (1) and/or said non-woven fabric (2) contain synthetic fibers

selected from polyolefins, polyesters, and polyamides as well as viscose and rayon including their mixtures.

5. The sound absorber according to claim 1, characterized in that said thermoplastic binder is selected from polyolefins and, ethyl/vinyl acetate copolymers.

6. The sound absorber according to claim 1, characterized in that said thermoset binder is selected from phenol-formaldehyde resins, epoxy resins and/or polyamide resins.

7. The sound absorber according to claim 1, characterized in that the amount of said thermoplastic and/or thermoset binder is from 5 to 50% by weight, based on said non-woven fabric (1) and/or said non-woven fabric (2).

8. The sound absorber according to claim 1, characterized in that the non-woven fabric (1) facing towards the sound-emitting source has a layer thickness within a range of from 3 to 10 mm, a density within a range of from 50 to 300 kg/m^3, a weight per surface area within a range of from 0.2 to 2 kg/m^2, and a flow resistance within a range of from 70 to 500 kNs/m^4.

9. The sound absorber according to claim 1, characterized in that the non-woven fabric (2) facing away from the sound-emitting source has a layer thickness within a range of from 12 to 18 mm, a density within a range of from 30

to 70 kg/m^3, a weight per surface area within a range of from 0.6 to 0.8 kg/m^2, and a flow resistance within a range of from 15 to 30 kNs/m^4.

10. The sound absorber according to claim 1, characterized in that the total thickness of the sound absorber is within a range of from 15 to 25 mm, and the total weight per surface area of the sound absorber is within a range of from 1 to 2.5 kg/m^2.

11. The sound absorber according to claim 1, characterized in that the ratio of the layer thicknesses of the non-woven fabric (2) to the non-woven fabric (1) is from 2:1 to 5:1.

12. The sound absorber according to claim 1, characterized in that the ratio of the densities of the non-woven fabric (1) to the non-woven fabric (2) is from 3:1 to 6:1.

13. A method for the preparation of sound absorbers according to claim 1, characterized by:

a) pasting a first base material consisting of a textile fiber material and a thermoplastic and/or thermosetting binder into a mold, optionally partially, to form the non-woven fabric (1);

b) predensifying the base material pasted according to step a) by heating and/or pressure;

c) pasting a second base material consisting of a textile fiber material and a thermoplastic and/or thermosetting binder, optionally partially, onto the first base material in the mold to form the non-woven fabric (2);

d) densifying the undensified sound absorber by the action of heat and pressure; and

e) cooling down to room temperature.

14. A method for the preparation of sound absorbers according to claim 1, characterized by:

a) pasting a first base material consisting of a textile fiber material and a thermoplastic and/or thermosetting binder into a mold, optionally partially, to form the non-woven fabric (1);

b) predensifying the undensified non-woven fabric (1) by the action of heat and pressure;

c) pasting a second base material consisting of a textile fiber material and a thermoplastic and/or thermosetting binder into a mold, optionally partially, to form the non-woven fabric (2);

d) predensifying the undensified non-woven fabric (2) by the action of heat and pressure;

e) superimposing the non-woven fabrics (1,2) and bonding and densifying them by the action of heat and pressure without an adhesive.

15. A method for the preparation of sound absorbers according to claim 1, characterized by:

a) pasting a first base material consisting of a textile fiber material and a thermoplastic and/or thermosetting binder into a mold, optionally partially, to form the non-woven fabric (1);

b) predensifying the undensified non-woven fabric (1) by the action of heat and pressure;

c) pasting a second base material consisting of a textile fiber material and a thermoplastic and/or thermosetting binder into a mold, optionally partially, to form the non-woven fabric (2);

d) predensifying the non-woven fabric (2) by the action of heat and pressure;

e) superimposing the non-woven fabrics (1,2) and bonding non-woven fabric (2) to non-woven fabric (1) by needle punching.

16. A method for the preparation of sound absorbers according to claim 1, characterized by:

a) pasting a first base material consisting of a textile fiber material and a thermoplastic and/or thermosetting binder into a mold, optionally partially, to form the non-woven fabric (1);

b) predensifying the undensified non-woven fabric (1) by the action of heat and pressure;

c) pasting a second base material consisting of a textile fiber material and a thermoplastic and/or thermosetting binder into a mold, optionally partially, to form the non-woven fabric (2);

d) predensifying the non-woven fabric (2) by the action of heat and pressure;

e) superimposing the non-woven fabrics (1,2) and bonding them together by needle punching using different needles.

17. Use of a sound absorber according to claim 1 as hood insulations, exterior bulkhead insulations, interior bulkhead insulations, textile wheel arch shells and lower shield in the engine compartment; as front floor insulations, middle floor insulations, floor coverings, roof liners, top bulkhead insulation, side trim and seat well insulations in the passenger compartment, or as textile wheel arch shells, trunk floor linings, rear shelves, trunk cover linings and trunk side linings in the trunk.

18. The sound absorber according to claim 1 characterized in that the ratio of the layer thicknesses of the non-woven fabric (1) to the non-woven fabric (2) is from 3:1 to 4:1.

19. The sound absorber according to claim 1, characterized in that the ratio of densities of the non-woven fabric (1) to the non-woven fabric (2) is from 4:1 to 5:1.